

METHOD OF FORMING TRENCH ISOLATIONS

ABSTRACT OF THE DISCLOSURE

Methods of forming trench isolations are provided. A method includes
5 providing a semiconductor substrate having a cell array region and a peripheral
region. At least one cell trench in the cell array region and at least one
peripheral trench wider than the cell trench in the peripheral region of the
substrate are formed. The cell and the peripheral trenches have sidewalls. A
first dielectric layer that partially fills the cell and peripheral trenches is formed
10 over the substrate. At least one photoresist pattern that exposes at least the
cell trench partially filled with the first dielectric layer is formed over the substrate.
The first dielectric layer formed on the sidewalls of the exposed cell trench is
etched by using the photoresist pattern as a etch mask. Subsequently, the
photoresist pattern is removed. A second dielectric layer filling the cell and
15 peripheral trenches is formed over the substrate where the photoresist pattern is
removed.